

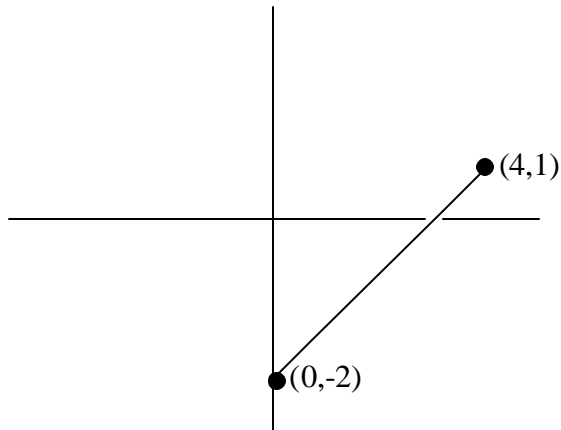
7. Convert 1.24×10^4 mm into km
- A. 12.4 km
 B. 1.24×10^2 km
 C. **1.24×10^{-2} km**
 D. 1.24×10^6 km
 E. 1.24×10^{-6} km
8. Express the following in decimal form: 4.2×10^{-3} g
- A. 4200 g
 B. 42 g
 C. 0.42 g
 D. 0.042 g
 E. **0.0042 g**
9. Express the following in proper scientific notation: 3600 s
- A. 3.6×10^4 s
 B. **3.6×10^3 s**
 C. 0.36×10^{-4} s
 D. 3.6×10^{-3} s
 E. 3600×10^3 s
10. Convert 880 cm^3 to in^3 (1 in = 2.54 cm)
- A. 346 in^3
 B. $1.44 \times 10^4 \text{ in}^3$
 C. 73.3 in^3
 D. **53.7 in^3**
 E. 115 in^3
11. Convert 72.0 km/hr to m/s
- A. **20.0 m/s**
 B. 1200 m/s
 C. 200 m/s
 D. 260 m/s
 E. 43.2 m/s
12. If $f(x) = x^2 - 2x + 3$, then $f(2)$ is equal to what?
- A. -2
 B. 4
 C. **3**
 D. -3
 E. 2
13. Evaluate the following: $\frac{4.0 \times 10^{-5}}{2.0 \times 10^{-3}}$
- A. 2.0×10^2
 B. **2.0×10^{-2}**
 C. 2.0×10^{-6}
 D. 2.0×10^{-8}
 E. 2.0×10^{-3}

14. Evaluate $10^{-2.2}$

- A. **0.0063**
- B. -2.2
- C. 0.022

- D. 0.342
- E. 158

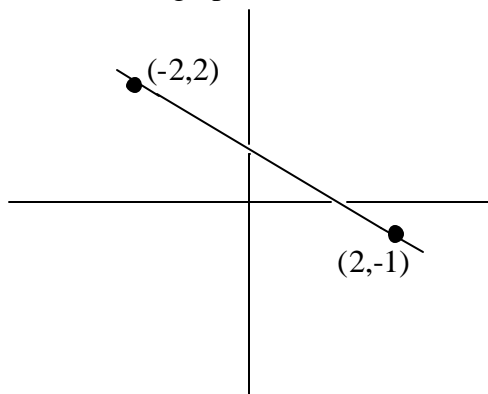
15. Consider the graph below. Determine the slope of the line.



- A. 4
- B. 3
- C. **3/4**

- D. 4/3
- E. -3/4

16. Consider the graph below. Determine the y-value at $x = 0$.



- A. 3/4
- B. 1
- C. 0.6

- D. **0.5**
- E. 0.7

For Questions 23 – 25, consider the following ion: ${}_{26}^{56}\text{Fe}^{+2}$

23. What are the total number of protons?
- A. 24
B. **26**
C. 28
D. 30
E. 56
24. What are the total number of neutrons?
- A. 24
B. 26
C. 28
D. **30**
E. 56
25. What are the total number of electrons?
- A. **24**
B. 26
C. 28
D. 30
E. 56
26. Consider the combustion of C_2H_4 according to the following unbalanced chemical equation: $\text{C}_2\text{H}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$. Determine the coefficient for O_2 when the equation is balanced using the smallest whole numbers.
- A. 1
B. 2
C. **3**
D. 7
E. 8
27. A certain glucose solution weighing 115 g has a density of 1.23 g/cm^3 . Determine the volume of this solution in cm^3 .
- A. 0.0107 cm^3
B. 114 cm^3
C. 116 cm^3
D. **93.5 cm^3**
E. 141 cm^3
28. Calculate the number of CCl_4 moles in 14.5 g CCl_4 .
Note: atomic wt of carbon = 12.011 g/mol; atomic wt of chlorine = 35.453 g/mol
- A. 154 mol
B. **0.0943 mol**
C. 10.6 mol
D. 0.305 mol
E. 2230 mol

29. Calculate the percent by mass of chlorine in PCl_3 .
Note: atomic wt of phosphorus = 30.974 g/mol;
atomic wt of chlorine = 35.45 g/mol
- A. 22.5
B. 50.0
C. 53.4
D. 25.0
E. **77.4**
30. A 0.125 L tank is filled with oxygen until the pressure is 75.0 atm at 298 K.
Calculate the moles of oxygen in the tank.
Note: $PV = nRT$; $R = 0.0821 \text{ L atm/K mol}$.
- A. 383
B. 4.57
C. 0.505
D. **0.383**
E. 0.00378